

Office of Aviation and International Affairs, Aviation Analysis
Legacy Carrier Revenue Premiums – Fourth Quarter 2002
Domestic Aviation Competition Issue Brief Number 20

Legacy carriers¹ continue to focus on cost reduction to adapt to an airline operating environment that has remained consistently challenging since the latter part of 2000. During the 4th quarter of 2002, the legacy carriers' composite domestic entity unit operating cost was 60% higher than the comparable figure for a composite of low-fare carriers.² Despite some evidence of success in cutting costs over the past several months, the legacy carriers will likely continue to have higher unit costs than the low-fare carriers, most of which have remained profitable during the industry's tumultuous past three years. As a result, the legacy carriers are counting on their ability to obtain a revenue premium for their services relative to the low-fare carriers to compensate for their cost disadvantage. Several legacy carrier executives have stated that they believe their airlines can maintain a revenue premium versus low-fare carriers of between 10% and 40% because they offer travelers features that low-fare carriers do not. Such features include the ability to earn and redeem frequent flyer miles across a global network that includes alliance partners as well as additional amenities such as first and business class cabins and airport lounges. Furthermore, as a general proposition, the legacy carriers typically offer travelers more convenience than low-fare carriers by providing greater access to primary airports closer to major population centers and offering more frequencies. These features have historically enabled the legacy carriers to charge less price sensitive business travelers a premium over the offerings of low-fare carriers.

The assumption that travelers will continue to be willing to pay a premium for such services is fundamental to the future of the legacy carrier business model. There are many industry developments that will, of course, affect the extent to which the legacy carriers are able to charge a premium, especially in markets where they face low-fare competition.³ For instance, the service quality differential between low-fare carriers and legacy carriers has narrowed as certain low-fare carriers have, to various degrees, improved their product by flying newer planes, installing premium cabins, initiating or improving frequent flyer programs, offering improved in-flight amenities such as live television, offering less restrictive rules for changing tickets, and increasing both the density and the scope of their networks. Meanwhile, in their efforts to reduce costs, many legacy carriers have cut back on some of the features that have traditionally differentiated them from low-fare carriers, such as eliminating complementary food service, reducing capacity and frequency thereby narrowing the convenience differential they offer travelers, and substituting smaller regional jet aircraft for larger mainline aircraft. Another factor is the Internet, which allows airlines to save on distribution costs, but at the same time greatly increases airline price transparency, making it easier than ever for consumers to comparison shop for the lowest fares. Perhaps even more importantly, most internet search engines are designed to search by price, not by other service quality features, and have thereby contributed further to the commoditization of the airline product in which price is the primary driver of airline choice.

¹ The legacy carriers considered in this analysis are American, Continental, Delta, Northwest, United, and US Airways.

² Source: DOT Form 41 filings. The legacy carriers' composite domestic unit operating cost was 11.89 cents and the low-fare carrier composite figure was 7.41 cents. Low-fare carriers included in this composite figure are ATA, AirTran, Frontier, JetBlue, Southwest, and Spirit. These figures are not adjusted for distances in average stage length between the two classes of carriers which, if taken into account, would make the cost differential even larger.

³ While this Special Feature focuses on the impact of low-fare carriers on competition for high-yield passengers, other developments, such as the increasing number of corporate jet fractional ownership arrangements, are also having an impact on competition for time-sensitive business travelers.

While leisure travelers have always chosen an airline primarily based on price, there is growing evidence that business travelers have become significantly more price sensitive. Furthermore, in contrast to many previous cyclical downturns, business travel has substantially declined during the recent economic downturn while leisure travel has remained relatively robust by comparison. It remains to be seen whether these changes are cyclical or structural. Much is at stake for the legacy carriers which have traditionally focused on less price sensitive business travelers who have accounted for the vast majority of their revenue. Their future success depends, in part, on the return of the business traveler willing to pay a premium for their services. Anecdotal evidence suggests that business travelers are increasingly willing to fly on low-fare carriers whose growth is having a greater influence on premiums the legacy carriers can charge business passengers. If the legacy carriers continue to shrink while the low-fare carriers continue to grow the scale and scope of their operations, the low-fare carriers will only become more attractive to the business traveler over time. (Low-fare carrier domestic traffic share was 27.0% in the fourth quarter of 2002, up from 21.6% in the fourth quarter of 1996. Low-fare carriers have, however, made even greater strides on the revenue side as they accounted for 18.8% of fourth quarter 2002 domestic revenue, up from 9.3% in the fourth quarter of 1996.⁴) While no one can predict what revenue premium the legacy carriers will ultimately be able to achieve vis-à-vis the low-fare carriers, we have analyzed our fare data from the fourth quarter of 2002 (4Q2002) and compared it with the fourth quarter of 2000 (4Q2000) in an effort to glean some insight into current trends and what the future may hold. These results are presented below.

Analysis

Markets of Interest

While there are numerous possible approaches to analyzing legacy carrier revenue premiums,⁵ the analysis conducted for this Special Feature focused on single coupon passengers⁶ in airport pair markets where a single low-fare carrier⁷ and a single legacy carrier both offered non-stop service in 4Q2002 and 4Q2000⁸ and both carriers averaged a minimum of 20 single coupon passengers per day each way for the 4th quarter in 2002 and 2000. The analysis identified 57 such airport pair markets. Appendix B lists these markets as well as the identities of the legacy carriers and low-fare carriers associated with each market.

Market Observations

Fare premiums in 2000 and 2002 were calculated by taking the difference between the legacy carrier's average fare and the low-fare carrier's average fare and then dividing this difference by the low-fare carrier's average fare. Appendix B contains, for each of the 57 identified markets, the legacy carrier's and low-fare carrier's average fares in both 2000 and 2002, the fare premium in both 2000 and 2002, and the change in fare premium points (i.e. 2002 Fare Premium minus 2000 Fare Premium).

⁴ These figures are based on domestic markets with a minimum of five passengers per day each way.

⁵ For example, one could compare the premium the legacy carriers obtain in markets where they do not face low-fare competition relative to similar markets where they do face low-fare competition. One could also analyze head-to-head premiums in other types of markets, such as those involving multiple legacy and/or low-fare competitors or connecting markets.

⁶ Single coupon passengers are primarily those that traveled non-stop but also include passengers that traveled on direct flights (i.e. where the aircraft made a stop but there was no change in flight number).

⁷ See Appendix A for a list of carriers that were considered to be low-fare carriers for the purpose of this analysis.

⁸ Based on OAG schedule data

There was considerable variation in fare premiums in both 2000 and 2002. In 2000, fare premiums ranged from 145.4% (Delta vs. JetBlue in the New York JFK-Salt Lake City market) to negative⁹ 4.2% (Delta vs. AirTran in the Atlanta-Buffalo market). In 2002, fare premiums ranged from 83.7% (Northwest vs. Sun Country in the Minneapolis/St. Paul-Seattle market) to negative 15.7% (Delta vs. JetBlue in the New York JFK-Fort Lauderdale market). Comparing 2002 and 2000, the change in fare premium points between 2002 and 2000 ranged from positive 27.8 (Northwest vs. Sun Country in the Minneapolis/St. Paul-Seattle market) to negative 76.5 (Delta vs. JetBlue in the New York JFK-Salt Lake City market). The legacy carrier premium declined in 42 (or 74%) of the 57 markets. The average premium declined from 25% in 2000 to 16% in 2002.

Description of Further Analysis

While these results indicate that legacy carrier premiums relative to low-fare carriers fell between 2000 and 2002 in the majority of these 57 markets, there was great variation in premiums across these markets in both years. We created a model in an effort to better understand what factors could explain some of the variation in fare premiums. The factors we modeled included a quality of service measure (i.e. the difference in average daily frequencies offered by the legacy carrier relative to the low-fare carrier, or “Frequency Gap”), competitive dynamics (number of other competitors with a 10% share of passengers in the market beyond the two non-stop competitors and the share of total market passengers that are using connecting alternatives to the non-stop services), other market characteristics (density, non-stop distance, whether the market includes a legacy carrier hub, and whether the market includes a city that has multiple airports), and time period. We then performed a stepwise regression¹⁰ in order to determine whether any of these factors explained any of the variation seen in legacy carrier premiums in these markets with statistical significance at the 10% level.

Results

The stepwise regression indicated that our variables for Distance, Frequency Gap, Time Period, and Connecting Passenger Share were statistically significant at the 10% level and that these variables explained 41% of the variation in legacy carrier premiums in the 57 identified airport pair markets. The regression indicated, all else being equal:

- **as distance increased, legacy carrier premiums increased.** This could reflect traveler willingness to pay more for additional amenities and comfort as well as the ability to earn more frequent flyer miles in a more attractive legacy carrier frequent flyer program on longer flights relative to those advantages on shorter flights.
- **as the difference between the flight frequencies offered by the legacy carrier and the low-fare carrier declined, fare premiums declined.** Our regression indicated that a decline in the frequency gap of one daily round trip reduces legacy carrier premiums by 1.8 percentage points. This effect is consistent with the notion that low-fare carriers become more attractive to business travelers when they offer greater convenience through improved time of day schedule coverage.
- **fare premiums tended to be lower in 2002 than in 2000.** Looking only at the effects of time, legacy carrier premiums were, on average, six percentage points lower in 2002 than in 2000.

⁹ A negative premium means that the “low-fare carrier” in fact had a higher average fare than the legacy carrier in that particular market. In 2000 and 2002, there were negative premiums in five and ten markets respectively.

¹⁰ “Stepwise regression” is a statistical technique for calculating the best equation by entering independent variables in various combinations and orders.

While our model does not explicitly consider specific changes in the airline industry, economy, or other aspects of the operating environment from 2000 to 2002, it does confirm that fare premiums have declined during the period. Some possible explanations for this decrease over time include differing economic situations as well as changes in consumer perception of the quality gap between the legacy carriers and low-fare carriers.

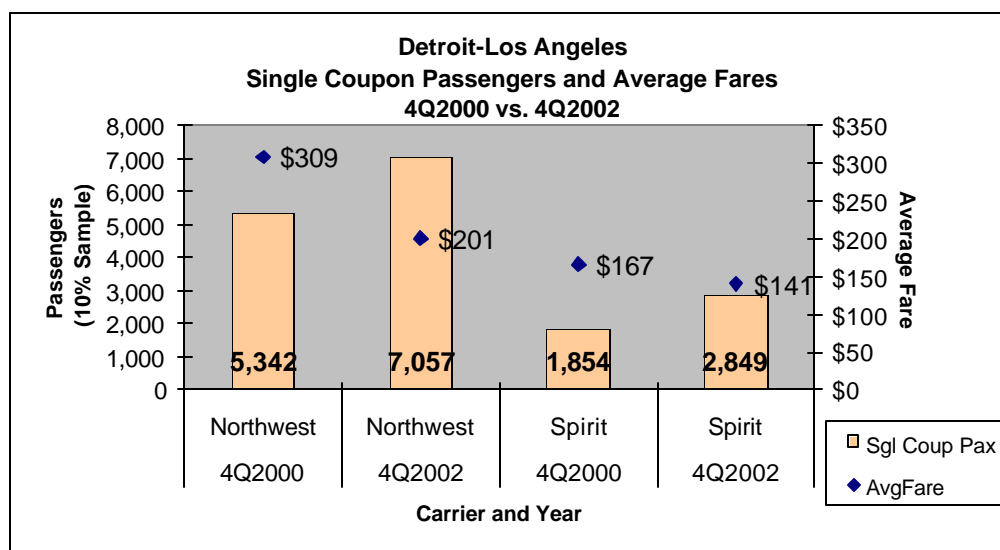
- **the larger the share of connecting passengers in a market, the lower the legacy carrier premium.** Intuitively, a higher level of connecting passengers implies greater consumer acceptance of competitive alternatives to non-stop service, and consequently limits the legacy carrier's ability to obtain a premium in that market.

Single Coupon Premiums, Traffic, and Fares in Several Sample Markets

We provide three examples below to illustrate the interaction of various competitive dynamics in the marketplace.

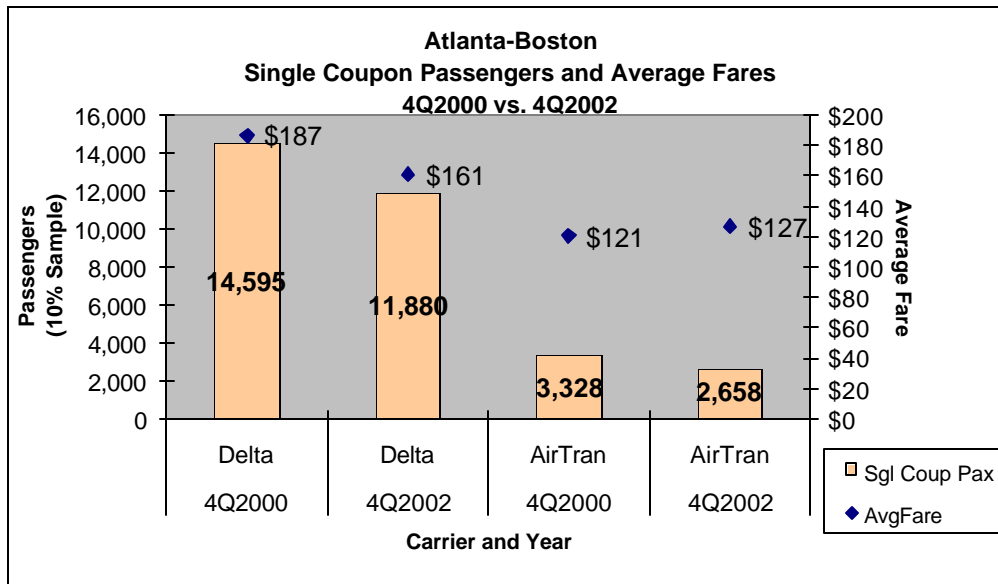
Detroit-Los Angeles

In the Detroit-Los Angeles market, Northwest's premium over Spirit fell from 85.3% in 4Q2000 to 42.7% in 4Q2002. Northwest's and Spirit's average fares both fell; Northwest's average fare declined from \$301 to \$201 while Spirit's average fare declined from \$167 to \$141. Northwest's traffic increased 32% while Spirit's increased 54%. Between the two periods, Northwest's average one-way daily non-stop frequencies declined from 10.6 to 9.8 while Spirit's increased from 2 to 4.



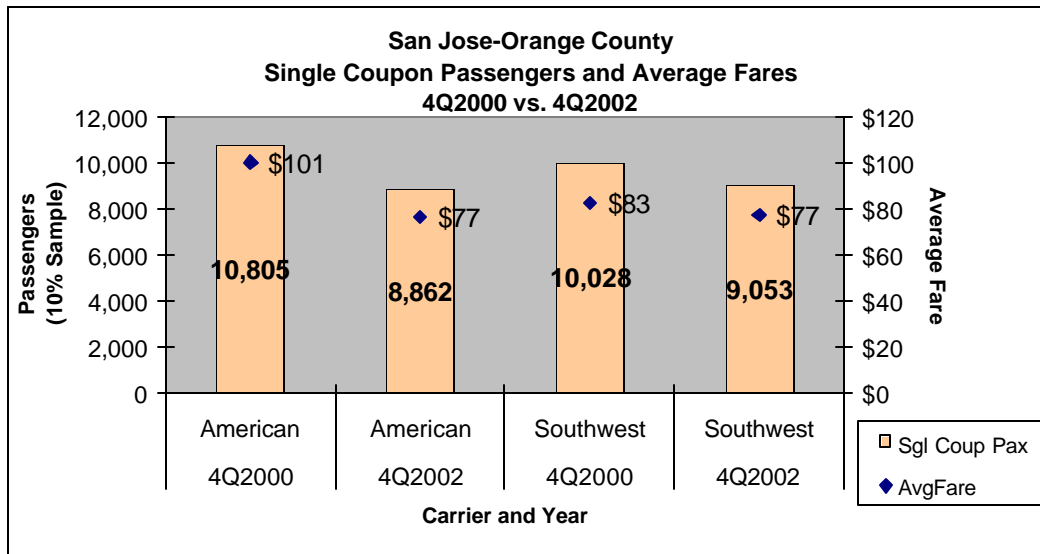
Atlanta-Boston

In the Atlanta-Boston market, Delta's premium over AirTran declined from 54.9% in 4Q2000 to 26.8% in 4Q2002. Delta's average fare declined from \$187 to \$161 while AirTran's increased from \$121 to \$127. Delta's traffic declined 19% while AirTran's fell 20%. Delta's average daily one-way non-stop frequency advantage over AirTran declined from 19 to 15 between the two periods.



San Jose, CA-Orange County, CA

In the San Jose-Orange Country market, American's premium over Southwest fell from 21.7% in 4Q2000 to -1.0% in 4Q2002, as American's average fare dropped from \$101 to \$77 while Southwest's average fare declined from \$83 to \$77. American's traffic declined 18% while Southwest's fell 10%. American's frequency advantage relative to Southwest declined to close to zero as American decreased its average daily non-stop flights from 16.6 to 13.9 while Southwest decreased its one-way non-stop flights per day from 13.6 in 4Q2000 to 13.2 in 4Q2002.



Conclusion

Our analysis indicated that in airport pair markets where a single low-fare carrier and a single legacy carrier competed against each other with non-stop service, legacy carriers generated a single coupon trip, average fare premium of 16% in 4Q2002, down from 25% in 4Q2000. However, there was wide

variation in these premiums across markets. We created a model and ran a stepwise regression that indicated that the model explained 41% of the variation in legacy carrier premiums. The major finding is that while legacy carriers can still obtain a premium on average when competing with low-fare carriers head-to-head on a non-stop basis, all else being equal, that premium declines as the frequency gap between the legacy carrier and the low-fare carrier shrinks. This suggests that legacy carrier premiums should continue to fall if low-fare carriers expand their head-to-head competition with legacy carriers and the legacy carriers continue to contract their service levels. Another conclusion is that the operating environment (e.g. changes in the airline industry, economy, or other conditions) in 2002 had a statistically significant different effect on fare premiums than the operating environment in 2000.¹¹ Looking only at the effects of the respective operating environments in 2002 and 2000, legacy carrier premiums were, on average, six percentage points lower in 2002 than in 2000. We do not know whether these changes are long-term or short-term. To the extent that any of the factors captured by the time variable reflect structural changes as opposed to cyclical variation, the ability of legacy carriers to obtain premiums going forward may have permanently declined as well. In future Special Features, we will examine the extent to which the competitive structure of the airline industry is changing and the effects of any fundamental structural change on various airline business models.

¹¹ Some possible explanations being captured by the Time Period variable include differing economic situations, increasing acceptance of low-fare carriers for business travel (over and above the Frequency Gap effect), improved low-fare carrier frequent flyer programs, and improved low-fare carrier amenities.

Appendix A

Low-fare Carriers for the Purpose of Special Feature Analysis	
B6	JetBlue Airways
F9	Frontier Airlines
FL	AirTran Airways
N7*	National Airlines
NJ*	Vanguard Airlines
NK	Spirit Air Lines
SY	Sun Country Airlines
TZ	ATA Airlines
WN	Southwest Airlines
XP	Casino Express

*carrier has ceased operations

Appendix B: Average Fares and Fare Premiums - 4th Quarter 2002 vs. 4th Quarter 2000

Airport Pair	Legacy Carrier	Low-fare Carrier	2000 Legacy Fare	2000 Low-fare Fare	2000 Premium	2002 Legacy Fare	2002 Low-fare Fare	2002 Premium	Change in Premium Points
New York JFK-Salt Lake City	DL	B6	\$325	\$132	145.4%	\$243	\$144	68.9%	-76.5%
Detroit-Los Angeles	NW	NK	\$309	\$167	85.3%	\$201	\$141	42.7%	-42.6%
Detroit-New York LaGuardia	NW	NK	\$190	\$114	66.3%	\$125	\$101	24.6%	-41.7%
Dallas/Ft. Worth International-Chicago Midway	AA	TZ	\$199	\$136	46.8%	\$148	\$137	8.0%	-38.8%
Ft. Lauderdale-Orlando	DL	WN	\$91	\$68	33.5%	\$78	\$77	0.9%	-32.6%
Atlanta-Boston	DL	FL	\$187	\$121	54.9%	\$161	\$127	26.8%	-28.2%
Atlanta-New York LaGuardia	DL	FL	\$203	\$130	55.5%	\$161	\$125	28.5%	-27.0%
Austin-Los Angeles	AA	WN	\$212	\$165	28.3%	\$174	\$168	4.0%	-24.3%
Detroit-West Palm Beach	NW	NK	\$170	\$122	39.7%	\$159	\$137	15.8%	-23.9%
San Jose, CA-Orange County, CA	AA	WN	\$101	\$83	21.7%	\$77	\$77	-1.0%	-22.7%
Atlanta-Jacksonville	DL	FL	\$129	\$94	37.7%	\$97	\$84	15.4%	-22.3%
Philadelphia-Tampa	US	FL	\$133	\$109	21.5%	\$129	\$130	-0.6%	-22.1%
Orlando-Philadelphia	US	FL	\$130	\$109	19.0%	\$124	\$127	-2.3%	-21.3%
Detroit-Ft. Lauderdale	NW	NK	\$176	\$128	37.9%	\$151	\$127	18.7%	-19.2%
Atlanta-New Orleans	DL	FL	\$140	\$109	28.8%	\$118	\$108	9.9%	-19.0%
Atlanta-Dayton	DL	FL	\$124	\$95	29.6%	\$115	\$101	13.4%	-16.1%
Ft. Lauderdale-Philadelphia	US	FL	\$130	\$116	12.0%	\$130	\$135	-3.4%	-15.4%
Los Angeles-New Orleans	UA	WN	\$203	\$172	18.0%	\$183	\$178	2.8%	-15.2%
Las Vegas-San Jose, CA	AA	WN	\$103	\$90	15.1%	\$100	\$99	1.1%	-14.1%
Portland, OR-Salt Lake City	DL	WN	\$117	\$94	24.4%	\$113	\$102	10.7%	-13.7%
Columbus-Tampa	DL	WN	\$110	\$107	2.9%	\$108	\$119	-10.0%	-12.8%
Atlanta-Greensboro/High Point/Winston-Salem	DL	FL	\$125	\$74	68.3%	\$105	\$67	55.7%	-12.6%
Ft. Lauderdale-New York JFK	DL	B6	\$118	\$122	-3.4%	\$111	\$131	-15.7%	-12.2%
Atlanta-Tampa	DL	FL	\$141	\$117	20.9%	\$130	\$120	8.6%	-12.2%
Albuquerque-Denver	UA	F9	\$211	\$160	32.3%	\$181	\$149	21.4%	-10.9%
Spokane-Salt Lake City	DL	WN	\$103	\$92	12.1%	\$97	\$95	2.6%	-9.5%
Atlanta-Gulfport/Biloxi	DL	FL	\$130	\$103	26.0%	\$103	\$89	16.6%	-9.5%
Boise-Salt Lake City	DL	WN	\$77	\$61	26.8%	\$84	\$71	18.3%	-8.5%
Nashville-Los Angeles	AA	WN	\$220	\$177	24.1%	\$202	\$174	15.9%	-8.1%
Cleveland-Chicago Midway	CO	WN	\$90	\$69	30.4%	\$91	\$74	22.8%	-7.6%
San Diego-San Jose, CA	AA	WN	\$90	\$88	2.7%	\$79	\$83	-4.7%	-7.4%
New York JFK-Tampa	DL	B6	\$111	\$108	2.4%	\$116	\$122	-4.8%	-7.2%
Las Vegas-Salt Lake City	DL	WN	\$83	\$74	12.2%	\$90	\$85	5.9%	-6.3%
Ft. Lauderdale-Islip/Long Island	DL	WN	\$119	\$119	0.1%	\$119	\$126	-5.6%	-5.7%
Atlanta-Orlando	DL	FL	\$140	\$113	24.0%	\$146	\$122	19.0%	-5.0%
Detroit-Ft. Myers	NW	NK	\$173	\$135	27.7%	\$165	\$133	24.1%	-3.7%
Seattle-Salt Lake City	DL	WN	\$111	\$101	9.8%	\$111	\$105	6.2%	-3.6%
Denver-Omaha	UA	F9	\$181	\$145	24.7%	\$175	\$143	21.8%	-2.9%
Detroit-Chicago Midway	NW	WN	\$76	\$76	0.9%	\$80	\$82	-1.5%	-2.4%
Atlanta-Ft. Lauderdale	DL	FL	\$139	\$123	13.1%	\$135	\$122	10.9%	-2.2%
Chicago O'Hare-Ft. Myers	UA	NK	\$179	\$130	37.9%	\$164	\$121	35.8%	-2.1%
Nashville-Cleveland	CO	WN	\$84	\$73	14.3%	\$90	\$79	14.0%	-0.4%
Atlanta-Ft. Myers	DL	FL	\$127	\$122	4.2%	\$132	\$125	5.3%	1.1%
Dallas Love Field-Houston George Bush	CO	WN	\$87	\$80	9.1%	\$88	\$80	10.3%	1.3%
Detroit-Tampa	NW	NK	\$161	\$129	25.0%	\$153	\$121	26.8%	1.8%
Denver-San Diego	UA	F9	\$219	\$173	26.1%	\$195	\$150	30.1%	3.9%
Baltimore-Denver	UA	F9	\$275	\$222	23.7%	\$205	\$158	29.5%	5.8%
Nashville-Orlando	DL	WN	\$105	\$110	-4.2%	\$123	\$121	1.9%	6.1%
Orlando-Louisville	DL	WN	\$104	\$108	-3.4%	\$120	\$116	3.6%	7.0%
Nashville-Detroit	NW	WN	\$113	\$103	10.3%	\$129	\$109	18.1%	7.8%
Detroit-Orlando	NW	NK	\$155	\$132	16.9%	\$156	\$123	26.6%	9.7%
Atlanta-Houston Hobby	DL	FL	\$139	\$136	2.7%	\$133	\$118	13.1%	10.4%
Denver-San Francisco	UA	F9	\$243	\$198	22.9%	\$211	\$154	36.7%	13.9%
Atlanta-Buffalo	DL	FL	\$111	\$116	-4.2%	\$122	\$110	10.1%	14.3%
Denver-Orlando	UA	F9	\$274	\$218	25.6%	\$252	\$178	41.5%	15.9%
Los Angeles-Sacramento	UA	WN	\$79	\$80	-0.6%	\$91	\$78	16.2%	16.7%
Minneapolis/St. Paul-Seattle	NW	SY	\$216	\$138	56.0%	\$238	\$129	83.7%	27.8%

Note: In our analysis, premiums were calculated based on unrounded average fares. Premiums will differ slightly if calculated based on the rounded average fares presented in this table.